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For: PREDICTIVE ALGORITHMIC MODEL

1           1.     A predictive algorithmic model for simulating photocatalytic reactions  
2 comprising:  
3                 an input section for defining a plurality of variables;  
4                 a calculation section for calculating a plurality of intermediate values and a  
5 plurality of output values; and  
6                 an output section for providing the plurality of output values of the  
7 photocatalytic reactions.

1           2.     The predictive algorithmic model of claim 1 wherein the plurality of  
2 variables include material, wavelength and photocatalytic reaction variables.

1           3.     The predictive algorithmic model of claim 1 wherein the plurality of  
2 variables include at least a first laser wavelength, a base fluence value, a fluence increment  
3 value, a first gas partial pressure, a partial pressure increment, a total pressure, first and  
4 second reactant types, a material absorption coefficient, a material threshold value, a  
5 material refractive index, an angle of incidence, and first and second photochemical reaction  
6 parameters.

1           4.     The predictive algorithmic model of claim 3 wherein the first laser  
2 wavelength is in the range of 100 to 400 nm.

1           5.     The predictive algorithmic model of claim 1 wherein the plurality of  
2     intermediate values include first and second optical gas densities, an incident fluence  
3     absorbed by gas, a reflected fluence, a total fluence absorbed by gas, a fluence absorbed  
4     in material, an ablation depth per pulse, and a photochemical component.

1           6.     The predictive algorithmic model of claim 1 wherein the plurality of  
2     output values includes a total material removed and a removal efficiency.

1           7.     The predictive algorithmic model of claim 1 wherein the photocatalytic  
2     reactions are ultraviolet catalytic reactions.

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